

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

1. - 17. (canceled).

18. (currently amended) A method of simultaneously making a plurality of sintered articles for throwaway tips of an accuracy of at least M-grade accuracy[[.]] from green compacts, said method comprising the steps of:

filling raw material powder into a cavity formed in a die;

press forming said raw material powder to form a plurality of green compacts,

placing said green compacts on a sintering plate having a center; and

sintering said green compacts simultaneously to form said sintered articles,

wherein each of said green compacts [[has]] is formed having at least one of a density gradient or a dimensional gradient, said at least one gradient decreasing in a predetermined direction a decreasing gradient across said green compact, and

wherein each of said green compacts is substantially oriented on said sintering plate in plan view with said gradient decreasing outwardly from the center of said sintering plate.

19. - 21. (canceled).

22. (previously presented) A method as defined in claim 18, wherein said accuracy is approximately G-grade accuracy.

23. (currently amended) A method as defined in claim 18, wherein said green compacts are placed radially on said sintering plate with respect to the center of said sintering plate as a result of the placing step.

24. (currently amended) A method as defined in claim 18, wherein said green compacts are placed concentrically on said sintering plate with respect to the center of said sintering plate as a result of the placing step.

25. (previously presented) A method as defined in claim 18, wherein a lower punch is provided in the cavity having an opening in the top face of the die to move vertically relative to the die; and

wherein a raw material powder feed box above the top face of the die moves across the top face, to supply raw material powder to fill the cavity while the lower punch is vertically moved so that the filling quantity of the raw material powder is controlled.

26. (previously presented) A method as defined in claim 18, wherein an upper portion of the filled raw material powder is scraped from the die.

27. (currently amended) A method of simultaneously making a plurality of sintered articles for throwaway tips of an accuracy of at least M-grade accuracy[[,]] from green compacts, said method comprising the steps of:

filling raw material powder into a cavity formed in a die;

press forming said raw material powder to form a plurality of green compacts;

placing said green compacts on a sintering plate; and

sintering said green compacts simultaneously to form said sintered articles;

wherein each of said green compacts [[has]] is formed having at least one of a density gradient or a dimensional gradient, said at least one gradient decreasing in a predetermined direction a decreasing gradient across said green compact

wherein each of said green compacts is substantially oriented on said sintering plate in plan view with said gradient decreasing outwardly from the center of said sintering plate, and

wherein a plurality of said green compacts are divided into a plurality of green compact groups respectively extending from the center of said sintering plate toward the outer circumference thereof in plan view.

28. - 30. (canceled).

31. (previously presented) A method as defined in claim 27, wherein said accuracy is approximately G-grade accuracy.

32. (currently amended) A method as defined in claim 27, wherein [[a]] the plurality of [[said]] green compacts is [[are]] divided into four groups.

33. (currently amended) A method as defined in claim 27, wherein the green compacts in each the same green compact group are placed parallel to each other as a result of the placing step.

34. (currently amended) A method as defined in claim 27, wherein [[a]] the plurality of [[said]] green compacts are placed on the sintering plate in a lattice shape in plan view as a result of the placing step.

35. (currently amended) A method as defined in claim 27, wherein [[a]] the plurality of [[said]] green compacts are placed on the sintering plate in zigzag shape in plan view as a result of the placing step.

36. (previously presented) A method as defined in claim 27, wherein a lower punch is provided in the cavity having an opening in the top face of the die to move vertically relative to the die; and wherein a raw material powder feed box above the top face of the die moves across the top face, to supply raw material powder to fill the cavity while the lower punch is vertically moved so that the filling quantity of the raw material powder is controlled.

37. (previously presented) A method as defined in claim 27, wherein an upper portion of the filled raw material powder is scraped from the die.

38. - 41. (canceled).

42. (currently amended) A method as defined in claim 18 [[38]], wherein said green compacts each have an identical decreasing gradient across the green compact.

43. - 51. (canceled).

52. (currently amended) A method as defined in claim 27 [[48]], wherein said green compacts each have an identical decreasing gradient across the green compact.

53. - 59. (canceled).

60. (currently amended) An apparatus for aligning a plurality of green compacts, comprising:
a sintering plate holder for horizontally holding a [[the]] sintering plate; and
a conveyance mechanism for holding and conveying the [[a]] plurality of green compacts to be placed on said sintering plate,
wherein said sintering plate holder has a first rotation mechanism for rotating and positioning said sintering plate at each angle of rotation around its vertical axis, and

wherein said green compact is placed on said sintering plate, so that said green compact is substantially oriented on said sintering plate in plan view outwardly from the center of said sintering plate.

61. (currently amended) An apparatus for manufacturing throwaway tips, the apparatus comprising:

a plurality of green compacts;

a sintering plate; and

an alignment apparatus including:

a sintering plate holder for horizontally holding a the sintering plate; and

a conveyance mechanism for holding and conveying the plurality of green compacts to be placed on said sintering plate,

wherein said sintering plate holder has a first rotation mechanism for rotating and positioning said sintering plate at each angle of rotation around its vertical axis,

wherein each of said plurality of green compacts is placed on said sintering plate, and is substantially oriented on said sintering plate in plan view outwardly from the center of said sintering plate,

wherein each of said green compacts is formed having at least one of a density gradient or a dimensional gradient, said at least one gradient decreasing in a predetermined direction across said green compact, and

wherein each of said green compacts is oriented on said sintering plate in plan view with said gradient decreasing outwardly from the center of said sintering plate as defined in claim 60, wherein a plurality of said green compacts are radially or concentrically placed on the sintering plate in plan view.

62. (currently amended) The apparatus as defined in claim 61 [[60]], wherein said [[a]] plurality of [[said]] green compacts placed on the sintering plate are divided into a plurality of green compact groups respectively extending from an inner circumferential center of the sintering plate to the outer circumference thereof in plan view.

63. (currently amended) An apparatus as defined in claim 62, [[a]] wherein said plurality of [[said]] green compacts [[are]] is divided into four groups.

64. (currently amended) An apparatus as defined in claim 62, wherein [[the]] green compacts in the same green compact group are placed parallel to each other.

65. (currently amended) An apparatus as defined in claim 62, wherein [[a]] said plurality of [[said]] green compacts are placed on said sintering plate in a lattice shape in plan view.

66. (currently amended) An apparatus as defined in claim 62, wherein said [[a]] plurality of [[said]] green compacts are placed on said sintering plate in a zigzag shape in plan view.

67. (canceled).

68. (new) The apparatus as defined in claim 61, wherein said plurality of green compacts are radially or concentrically placed on the sintering plate in plan view.

69. (new) The apparatus as defined in claim 60, wherein said conveyance mechanism has a second rotation mechanism for rotating each held green compact around an axis of the conveyance mechanism.